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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WON, MICHAEL YOUNG	

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/749,989	LIENHART ET AL.	
	Examiner	Art Unit	
	Michael Y. Won	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the application file December 31, 2003.

2. Claims 1-21 have been examined and are pending with this action.

Specification

3. Claims 12-14 and 19-21 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim must refer as an alternative only. See MPEP § 608.01(n). Accordingly, the claims 12-14 and 19-21 have not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Bekritsky et al. (US 2002/0059535 A1).

INDEPENDENT:

As per ***claim 1***, *Bekritsky* teaches a method comprising:

a first node recording a first node local time of receiving a wirelessly transmitted packet (see pg.1, paragraph [0006]: "The first arrival time is a time of reception of the reference data packets by a first receiving station"), the first node local time recorded with a monotonically increasing clock of the first node (see pg.2, paragraph [0015]: "a clock that runs independently from the clocks of the other receiving stations");

a second node recording a second node local time of receiving the wirelessly transmitted packet (see pg.1, paragraph [0006]: "second arrival time is a time of reception of the reference data packets by a second receiving station"), the second node local time recorded with a monotonically increasing clock of the second node(see pg.2, paragraph [0015]: "a clock that runs independently from the clocks of the other receiving stations");

the first node wirelessly transmitting the recorded local time to at least a second node (implicit: see pg.1, paragraph [0006]: "A first arrival time is compared to a second arrival time to determine a correlated arrival time data" and pg.2, paragraph [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A");

the second recording the first node local time of receiving the wirelessly transmitted packet (implicit: see pg.1, paragraph [0006]: "A first arrival time is compared

to a second arrival time to determine a correlated arrival time data" and pg.2, paragraph [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A"); and

the second node updating a second node timing model to synchronize with the first node, the updating based on the second node local time of receiving the wirelessly transmitted packet and the first node local time of receiving the wirelessly transmitted packet (see pg.1, paragraph [0006]: "method and system of synchronizing internal clocks of receiving stations" and "A first arrival time is compared to a second arrival time to determine a correlated arrival time data").

As per ***claim 8***, *Bekritsky* teaches a machine-readable medium having stored thereon a set of instructions which when executed cause a system to perform a method comprising of:

a first node recording a first node local time of receiving a wirelessly transmitted packet (see pg.1, paragraph [0006]: "The first arrival time is a time of reception of the reference data packets by a first receiving station"), the first node local time recorded with a monotonically increasing clock of the first node (see pg.2, paragraph [0015]: "a clock that runs independently from the clocks of the other receiving stations");

a second node recording a second node local time of receiving the wirelessly transmitted packet (see pg.1, paragraph [0006]: "second arrival time is a time of reception of the reference data packets by a second receiving station"), the second node local time recorded with a monotonically increasing clock of the second node (see

pg.2, paragraph [0015]: "a clock that runs independently from the clocks of the other receiving stations");

the first node wirelessly transmitting the recorded local time to at least a second node (implicit: see pg.1, paragraph [0006]: "A first arrival time is compared to a second arrival time to determine a correlated arrival time data" and pg.2, paragraph [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A");

the second recording the first node local time of receiving the wirelessly transmitted packet (implicit: see pg.1, paragraph [0006]: "A first arrival time is compared to a second arrival time to determine a correlated arrival time data" and pg.2, paragraph [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A"); and

the second node updating a second node timing model to synchronize with the first node, the updating based on the second node local time of receiving the wirelessly transmitted packet and the first node local time of receiving the wirelessly transmitted packet (see pg.1, paragraph [0006]: "method and system of synchronizing internal clocks of receiving stations" and "A first arrival time is compared to a second arrival time to determine a correlated arrival time data").

As per ***claim 15***, *Bekritsky* teaches a system comprising:

a processor (see pg.4, claim 11: "a processor connected to the receiving stations");

a wireless (see pg.1, paragraph [0011]: "wireless devices") network interface coupled to the processor (inherent); and

a machine-readable medium having stored thereon a set of instructions which when executed cause the system to perform a method comprising of:

a first node recording a first node local time of receiving a wirelessly transmitted packet (see pg.1, paragraph [0006]: "The first arrival time is a time of reception of the reference data packets by a first receiving station"), the first node local time recorded with a monotonically increasing clock of the first node (see pg.2, paragraph [0015]: "a clock that runs independently from the clocks of the other receiving stations");

a second node recording a second node local time of receiving the wirelessly transmitted packet (see pg.1, paragraph [0006]: "second arrival time is a time of reception of the reference data packets by a second receiving station"), the second node local time recorded with a monotonically increasing clock of the second node (see pg.2, paragraph [0015]: "a clock that runs independently from the clocks of the other receiving stations");

the first node wirelessly transmitting the recorded local time to at least a second node (implicit: see pg.1, paragraph [0006]: "A first arrival time is compared to a second arrival time to determine a correlated arrival time data" and pg.2, paragraph [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A");

the second recording the first node local time of receiving the wirelessly transmitted packet (implicit: see pg.1, paragraph [0006]: "A first arrival time is compared

to a second arrival time to determine a correlated arrival time data" and pg.2, paragraph [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A"); and

the second node updating a second node timing model to synchronize with the first node, the updating based on the second node local time of receiving the wirelessly transmitted packet and the first node local time of receiving the wirelessly transmitted packet (see pg.1, paragraph [0006]: "method and system of synchronizing internal clocks of receiving stations" and "A first arrival time is compared to a second arrival time to determine a correlated arrival time data").

DEPENDENT:

As per ***claims 2, 9, and 16***, which depend on claims 1, 8, and 15, respectively, *Bekritsky* further teaches wherein the wirelessly transmitted packet received by the first and second node is a beacon transmitted from a wireless access point (see pg.1, paragraph [0006]: "A beacon transmits reference data packets at a known position" and pg.2, paragraph [0017]: "Such reference packets 22 may be created based on an 802.11x network standard and transmitted by access points").

As per ***claims 3, 10, and 17***, which depend on claims 1, 8, and 15, respectively, *Bekritsky* teaches of further including: synchronizing sample numbers of a multimedia stream on the second node with the timing model of the second node (see pg.2, paragraph [0021]: " the slopes and intercepts are continuously computed and updated"), the timing model of the second node having been synchronized with the first node.

As per ***claims 4, 11, and 18***, which depend on claims 3, 10, and 17, respectively, *Bekritsky* further teaches wherein the synchronization of sample numbers in I/O operations is performed by time-stamping IRQs request with the global time (see pg.2, paragraph [0017]: "Each receiving unit time-stamps the packets as they arrive"; paragraph [0021]: "the clock of one of the receiving stations is used as a reference clock, and all the clocks of the other receiving stations are corrected to match the frequency and start time of the reference clock"; and pg.3, paragraph [0024]: "time stamp is then adjusted to compensate for frequency offset and the random stat time of the internal clock").

As per ***claims 5, 12, and 19***, which depend on claims 1, 8, and 15, respectively, *Bekritsky* teaches of further including repeating the method of claim 1 to generate an updated second node timing model to synchronize with the first node (see pg.2, paragraph [0021]: " the slopes and intercepts are continuously computed and updated").

As per ***claims 6, 13, and 20***, which depend on claims 5, 12, and 19, respectively, *Bekritsky* further teaches wherein the repeating the method of claim 1 to generate an updated second node timing model includes using a least trimmed squares regression to limit a magnitude of updates (see pg.1, paragraph [0006]: "synchronized as a function of the linear polynomial fit" and pg.2, paragraph [0020]: "the linear polynomial fit may be determined using a least-squares methodology").

As per ***claims 7, 14, and 21***, which depend on claims 6, 13, and 20, respectively, *Bekritsky* teaches of further including:

a third node (see Fig.2) recording a third node local time of receiving the wirelessly transmitted packet from the first node and recording the first node local time of receiving the wirelessly transmitted packet (see claim 1, 8, and 15 rejections above); and

the third node updating a third node timing model to synchronize with the first node, the updating based on the third node local time of receiving the wirelessly transmitted packet and the first node local time of receiving the wirelessly transmitted packet (see claim 1, 8, and 15 rejections above). **Note**: incorporating additional nodes performing the same functionality explicitly taught, do not make the invention novel and therefore does not overcome the prior art of reference.

Conclusion

5. For the reasons above claim 1-21 has been rejected.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y. Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Won

November 18, 2005

SALEH NAJJAR
SUPERVISORY PATENT EXAMINER